



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219-2000

PHILIP A. SHUCET
COMMISSIONER

December 17, 2003

MEMORANDUM:

TO: Interstate 81 PPTA Advisory Panel Members

FROM: Rich Prezioso, Interstate 81 PPTA Project Manager

SUBJECT: Review of Detailed Proposals received for I-81 PPTA Project

Similar to the methodology used for Phase One of the review process, a review of the planning, engineering and operations aspects of the detailed proposals submitted by Fluor Virginia, Inc. and by STAR Solutions is being conducted under the direction of the Chief Engineer of VDOT. This review is being conducted in accordance with the process outlined below.

1. Copies of each proposal were distributed to a Technical Review team consisting of a variety of disciplines in an effort to generate as broad of a review as possible. Accompanying the distributed copy of each proposal was a cover letter indicating the level of review, proposal evaluation criteria and proposed review schedule. The disciplines and responsible individuals are as indicated below:

<u>Division/Area of Responsibility</u>	<u>Responsible Individual</u>
Bristol District Construction	Mr. Ken Brittle
Salem District Construction	Mr. Pete Sensabaugh
Staunton District Construction	Mr. Randy Kiser
Innovative Finance	Ms. Deborah Brown
Right of Way	Mr. Les Griggs
Utilities	Mr. Greg Wronewicz
Structure and Bridge	Mr. Jim Fariss
Traffic Control Devices/ Lighting	Ms. Karen Rusak
Asset Management	Mr. Mike Hall
Environmental	Ms. Jackie Cromwell
Transportation Planning	Mr. Walter Pribble
Civil Rights (EEO)	Mr. Craig Wingfield
Legal Review	Mr. Rick Walton
Federal Highway Administration	Ms. Irene Rico
Public Resources Advisory Group	Mr. Steven Peyser

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2. In addition to the broad review being performed by the various disciplines within VDOT, an In-depth Review team of individuals was identified to perform an in-depth review of the proposed project characteristics, schedule and estimate for each proposal. A separate team is reviewing each proposal. This is being done to ensure the review is based against the evaluation criteria and not influenced by a comparison of the two proposals. The members of these teams are tasked with providing a thorough review of the scope, schedule and estimate for their respective proposal, utilizing not only their own expertise, but also that of other resources throughout the department as necessary to complete the review. These teams will provide their results to the PPTA Project Manager. The team members are as follows:

In-Depth Review Team for Fluor Virginia, Inc.

Mr. Joel Denunzio, Loc. & Des., team leader
Ms. Cara Simpson, Location & Design
Mr. John Wright, Structure & Bridge
Mr. James Bullins, Bristol Dist. Loc. & Des.

In-Depth Review Team for STAR Solutions

Mr. John Olenik, Loc. & Des., team leader
Mr. Michael Tatom, Location & Design
Mr. Thai Trinh, Structure & Bridge
Mr. Norman Walls, Bristol Dist. Loc. & Des.

3. All comments that are received, both from the Technical Review team and from the In-Depth Review team, will be compiled by the PPTA Project Manager into a format suitable for consideration by the Advisory Panel. The PPTA Project Manager will develop a compilation of the review comments in a format that is consistent with the evaluation and selection criteria contained in section "J" of the RFP. Each Advisory Panel Member will receive a copy of the supporting comments as well as the compilation.

**INTERSTATE 81 PPTA PROPOSAL REVIEW
DETAILED PROPOSAL EVALUATION AND SELECTION CRITERIA
FLUOR VIRGINIA, INC.**

Qualifications and Experience Does the proposer propose a team that is qualified, led, and structured in a manner that will clearly enable the team to complete the proposed project?

1. Experience with Similar Infrastructure Projects - Have members of this team previously worked together constructing, improving or managing transportation infrastructure? Has the lead firm managed, or any of the member firms worked on, a similar privatization project?

Most of the proposed team members have worked together on previous projects, including two PPTA projects in Virginia. Fluor Virginia, Inc. has completed the Route 895 Connector (Pocahontas Parkway) project for VDOT.

2. Demonstration of Ability to Perform Work - What commitments has the team made to carry out the project? Does the team have a track record of timely completion of projects? Does the team possess the necessary financial, staffing, equipment, and technical resources to successfully complete the project? Do the team and/or member firms have competing financial or workforce commitments that may inhibit success and follow-through on this project?

The proposal identified three (3) Design-Build Teams led by Fluor, Granite and Kiewit. All key team members have very extensive experience in the development and construction of major transportation facilities. The identified teams appear to have sufficient staff and resources for the project.

3. Leadership Structure - Is one firm designated as lead on the project? Does the organization of the team indicate a well thought out approach to managing the project? Is there an agreement/document in place between members?

Fluor Virginia, Inc. will be the prime contractor on the project. The contractual arrangements between the proposed team members were not specifically indicated. It was indicated that the three segment design builders (Fluor, Kiewit and Granite) would each be responsible for the design and construction of their portion of the work.

4. Project Manager's Experience - Is a Project Manager identified, and does this person work for the principal firm? If not, is there a clear definition of the role and responsibility of the Project Manager relative to the member firms? Does the Project Manager have experience leading this type and magnitude of project?

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Herb Morgan of Fluor Virginia, Inc. has been identified as the Project Sponsor for this project. He is competent and has extensive experience in managing projects of this nature. Mr. Morgan was the Project Director for the Route 895 Connector (Pocahontas Parkway) project.

Michael Hatchell of Fluor Virginia, Inc. has been identified as the Program Manager for the project. His experience includes serving as project manager for the \$5 billion Construction Resource and Management Program for SCDOT.

5. Management Approach - Have the primary functions and responsibilities of the management team been identified? Have the members of the team developed an approach to facilitate communication among the project participants? Has the firm adequately described its approach to communicating with and meeting the expectations of the Commonwealth?

The proposal clearly identified the primary function and responsibilities of the respective team members (see page 1-13 of conceptual proposal). The proposal also included the development of a coordination plan that would promote and facilitate communication among the project participants. The proposal also includes a provision for partnering with VDOT to ensure that expectations are met. It also outlined work to be performed by the Department or other public entities

6. Financial Condition - Is the financial information submitted on the firms sufficient to determine the firms' capability to fulfill its obligations described in the project proposal?

The proposal contained information that, when supplemented by additional readily available public information, allows sufficient determination of the team's financial capability. More details regarding this determination are contained in the responses to the evaluation criteria that specifically address "project financing."

7. Project Ownership - Does the proposal identify the proposed ownership arrangements for each phase of the project and indicate assumptions on legal liabilities and responsibilities during each phase of the project?

Fluor will serve as developer, prime contractor and program manager for the project. There will be three separate design-build teams (Southern Corridor - Granite/Lane joint venture; Middle Corridor - Kiewit; Northern Corridor - Fluor) each responsible for approximately one-third of the corridor, and each will be a subcontractor to Fluor in its role as prime contractor and program manager. Assumptions on legal liability were not provided.

8. Participation of DBEs - What is the level of commitment by the proposers to use DBE enterprises in developing and implementing the project?

The proposal addresses the 12% goal for DBE participation. Fluor has provided a table identifying DBE success on past projects. Fluor plans to utilize DBE's in the design and construction phases.

9. Competitive Bidding – To what extent have adequate and transparent procurement policies been adopted by the proposer to maximize competitive bidding opportunities for potential subcontractors and suppliers?

The proposal did not indicate specific bidding opportunities or procurement policies; however, Fluor does indicate that each design and construction member will supplement its efforts with additional Virginia-based engineering firms and subcontractors.

10. Long-Term Commitment to Safety - What is the safety record of the firm or firms that comprises the team?

Fluor included in the proposal a report that indicates apparent safety advantages associated with the design concept they are proposing. The proposal indicates that the proposing teams safety record is better than the national average.

11. Appropriately Skilled Workforce – Do the firms on the team have training programs, including but not limited to apprenticeship programs, in place for employees?

Fluor has indicated in their proposal that their team has developed a series of training programs for construction, maintenance, supervision and engineering skills. This training includes both pre-employment and training for current employees.

Project Characteristics Is the proposed transportation facility technically feasible?

1. Project Definition - Is the project described in sufficient detail to determine the type and size of the project, the location, all proposed interconnections with other transportation facilities, the communities that may be affected, and alternatives (e.g. alignments) that may need to be evaluated?

The concept proposed by Fluor is described adequately. The number of lanes to be added, lane configuration and location, interchange improvement impacts, and impacts to local secondary roads are all indicated. There is some ambiguity with regards to the location/quantity of proposed sound barriers and the responsibility for several activities associated with identifying and addressing potential hazardous materials.

2. Proposed Project Schedule - Is the time frame for project completion clearly outlined? Is the proposed schedule reasonable given the scope and complexity of the project? Does the proposal contain adequate assurances that the project will be completed and will be completed on time?

Fluor includes a schedule which indicates the timeframe for completion. The time frame as proposed is extremely aggressive and will be difficult to maintain. Fluor indicates that they will be able to commit to a guaranteed completion date once two items are completed – completion of NEPA, and required legislative changes.

3. Operation - Does the proposer present a reasonable statement setting forth plans for operation of the facility?

Flour's proposal indicates that operation and maintenance will be the responsibility of VDOT (including tolling). They do include an option (at an additional cost of \$930 million) for VDOT to add roadway maintenance activities provided by VMS to the project. This option is not included in the plan of finance as presented by Fluor.

4. Technology - Is the proposal based on proven technology? What is the degree of technical innovation associated with the proposal? Will the knowledge or technology gained from the project benefit other areas of the state or nation? Does the technology proposed maximize interoperability with relevant local and statewide transportation technology? Can the proposed project upgrade relevant local technology?

Fluor's proposal for improving the roadway is based on current industry technology. The toll collection method is proposed to be an open-road, totally electronic toll collections system for the entire I-81 corridor. Also the proposal indicates the installation of a broadband wireless infrastructure. The toll collection and broadband aspects of the proposal could provide benefits that will be recognized throughout the Commonwealth.

5. Conforms to Laws, Regulations, and Standards - Is the proposed project consistent with applicable state and federal statutes and regulations, or reasonably anticipated modifications of state or federal statutes, regulations or standards? Does the proposed design meet appropriate state and federal standards?

The proposal does not require any corridor-wide design exceptions from current standards. The proposal will require legislative changes to allow the collection of tolls from passenger vehicles. Legislative actions may also be required to support enforcement of unpaid tolls using the license plate recognition system. FHWA has granted "conditional provisional" approval for VDOT to place tolls on I-81. Although the proposal states that Fluor will

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be providing a satisfactory LOS at all interchanges, they are proposing to reconstruct the interchanges based on year 2020 traffic forecasts, not 2035. It is likely that when 2035 projections are used, the some of the configurations proposed will not be adequate.

6. Federal Permits - Is the project outside the purview of federal oversight, or will it require some level of federal involvement due to its location on the National Highway System or Federal Interstate System or because federal permits are required?

Federal actions will be required due to Route 81's designation as an Interstate facility.

7. Meets/Exceeds Environmental Standards - Is the proposed project consistent with applicable state and federal environmental statutes and regulations? Does the proposed design meet appropriate state environmental standards? Does the proposal adequately address or improve air quality conformity?

A review of the proposal has not revealed any aspects of the project that are inconsistent with applicable state and federal environmental statutes and regulations, however, there will be a significant amount of environmental compliance activity required to accomplish the project. Fluor has included an option (at an additional cost of \$20 million) that would expand and enhance commercial truck parking along the corridor. The truck parking option could have potential air quality conformity benefits.

8. State and Local Permits - Does the proposal list the required permits and schedule to obtain them? Are there negative impacts known for the project? If so, is there a mitigation plan identified? Are alternatives to standards or regulations needed to avoid those impacts that cannot be mitigated?

Fluor appears to have not adequately described the water quality permit requirements, nor do they appear to have adequately budgeted for the acquisition of permit authorizations, compensatory mitigation for wetlands, streams, natural resource investigations and clearances, and other ecological impacts.

9. Right of Way - Does the proposal set forth the method by which the private operator proposes to secure all property interests required for the transportation facility? Does the statement include: the names and addresses, if known, of the current owners of the property needed for the facility, the nature of the property to be acquired, and a listing of any property that the responsible public entity is expected to be requested to condemn?

A plan for Right of Way acquisition is included. Due to the current level of development, VDOT determined that it was not appropriate to expend resources identifying individual owner names and addresses. This

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information will be developed when project development is at a more appropriate stage.

10. Maintenance - Does the proposer have a plan to maintain this facility in conformance with VDOT standards? Does the proposal clearly define assumptions or responsibilities during the operational phase including law enforcement, toll collection and maintenance?

Fluor's proposal indicates that operation and maintenance will be the responsibility of VDOT. They do include an option (at an additional cost of \$930 million) for VDOT to add roadway maintenance activities provided by VMS to the project. This option is not included in the plan of finance as presented by Fluor. Responsibility for the operation of toll collection facilities and for law enforcement will remain with the Commonwealth.

Project Financing Has the proposer provided a financial plan and financial guarantees which will allow for access to the necessary capital to finance the facility?

1. Financing - Did the proposer demonstrate evidence of its ability and commitment to provide sufficient equity in the project as well as the ability to obtain the other necessary financing?

Fluor provided past examples of projects they have successfully completed in the proposal. A review of the proposal by the Public Resources Advisory Group (PRAG) has indicated that the ability to sell the proposed amount of unrated subordinated debt will be influenced by the creditability of the toll revenue estimates.

2. Financial Plan - Does the financial plan demonstrate a reasonable basis for funding project development and operations? Are the assumptions on which the plan is based well defined and reasonable in nature? Are the plan's risk factors identified and dealt with sufficiently? Are the planned sources of funding and financing realistic? Does the proposer make a financial contribution to the project?

The finance plan proposed by Fluor appears to be based on reasonable assumptions. Some, but not all risk factors have been identified in the proposal. Fluor proposes to finance the entire project with toll revenue bonds where tolls will be charged for both cars and trucks. Fluor indicates that \$53 million in development costs will be paid although the RFP states that these costs will not be recoverable as part of the project.

3. Estimated Cost - Is the estimated cost of the facility reasonable in relation to the cost of similar projects? A significant portion of the final determination will rely on a cost/benefit analysis.

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A review of the estimate included in the proposal has indicated that although there were some individual areas where VDOT's review identified some discrepancies, the overall costs proposed by Fluor are reasonable.

4. Life Cycle Cost Analysis - Does the proposal include an appropriately conducted analysis of projected rate of return and life cycle cost estimate of the proposed project and/or facility?

Fluor indicates that life cycle cost analysis will be utilized during the selection of the appropriate pavement design for the project. Beyond this reference, no analysis is included in the proposal.

5. Business Objective - Does the proposer clearly outline his reason for pursuing this project? Do his assumptions appear reasonable?

No business objective for Fluor is outlined in the proposal.

Public Support Has the proposer garnered sufficient public support for the proposed project?

1. Community Benefits - Will this project bring a significant transportation and economic benefit to the community, the region, and/or the state? Are there ancillary benefits to the communities because of the project?

Improvements to I-81 were determined to be necessary in the improvement studies completed by VDOT in the late 1990's. The improvements identified by Fluor are consistent with those included in the VDOT studies, and can be expected to provide benefits consistent with those identified in the studies. The Fluor team has indicated that improved safety will be the primary benefit provided by the project. The addition of an additional lane in each direction will also increase the capacity of the facility. In the proposal, Fluor also indicates that the project will "enhance economic development" along the corridor.

2. Community Support - What is the extent of support or opposition for the project? Does the project proposal demonstrate an understanding of the national and regional transportation issues and needs, as well as the impacts this project may have on those needs? Is there a demonstrated ability to work with the community?

Fluor indicates that they have had discussions with local government officials and local communities as well as conducted a poll of registered voters in the corridor. According to the proposal, the results of these efforts indicate public support for their concept. There is some inconsistency between the results indicated in the proposal and the comments received by VDOT from local jurisdictions and other interested parties. While there is obvious widespread support for improving I-81, there appears to be substantial

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variance with regards to the type of improvements necessary, the means of financing, and the diversion of freight.

3. Public Involvement Strategy - What strategies are proposed to involve local and state elected officials in developing this project? What level of community involvement has been identified for the project? Is there a clear strategy for informing, educating and obtaining community input through the development and life of the project?

Fluor identifies its public relations plan as a four-phase plan: opinion research; community outreach; communications; and public-sector education. Several community involvement methods are identified.

Project Compatibility Is the proposed project compatible with state and local comprehensive plans?

1. Compatibility with the Existing Transportation System - Does this project propose improvements that are compatible with the present and planned transportation system? Does the project provide continuity with existing and planned state and local facilities?

The improvements proposed by Fluor are consistent with those included in the VDOT improvement studies, with only minor changes. Improvements to I-81 of the type proposed by Fluor are consistent with recently completed improvements along the corridor.

2. Fulfills Policies and Goals - Does the proposed project help achieve performance, safety, mobility or transportation demand management goals? Does the project improve connections among the transportation modes?

While it is apparent that the addition of a lane in each direction will increase capacity and improve safety on I-81, it is not clear if the proposed improvements will adequately address transportation planning criteria such as achieving an appropriate Level of Service. Interconnections among transportation modes are not addressed in the proposal.

3. Enhance Community-Wide Transportation System - Are there identified project benefits to the affected local jurisdiction's transportation system? Does this project enhance adjacent transportation facilities?

The proposal addresses only improvements directly on I-81. Adjacent transportation facilities are not addressed. The only exception to this would be if VDOT should choose to pursue the rail improvement option Fluor has proposed with an additional estimated cost of \$132 million.

4. Consistency with Local, Regional and State Transportation Plans - Is the project consistent with city and county comprehensive plans and regional transportation plans? Is

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this project consistent with plans and documents of the Virginia Multimodal Long Range Plan? If not, are steps proposed that will achieve consistency with such plans?

A narrow majority of local government responses indicated that the improvements were consistent with their local comprehensive plans, however this may be misleading in that most of the negative responses were related to the imposition of tolls, and not the physical improvements themselves. When the comments are evaluated to determine which local governments actually indicated that the proposed physical improvements are inconsistent with their local transportation plans, the majority indicated above increases substantially.

5. Economic Development - Will the proposed project enhance the state's economic development efforts? Is the project critical to attracting or maintaining competitive industries and businesses to the region, consistent with stated objectives?

In the proposal, Fluor indicates that improvements to I-81 will provide benefits to the economic condition of southwestern Virginia such as improved efficiencies for businesses to reach markets outside the corridor region, improved safety for employees and freight traffic resulting in reduced operating costs, increased ability to attract new business investment along the corridor, increased integration of northern Virginia businesses with southwestern Virginia, and allowing VDOT to utilize resources for other transportation improvements. Virginia Economic Development Partnership is conducting a review that will provide additional insight into this area.

6. Intermodal/Rail – Does the proposed project enhance intermodal/rail facilities?

The proposal does include a rail improvement alternative, available at an additional cost. The rail improvements proposed address an existing “bottleneck” in the existing Norfolk Southern facilities. A separate review by DRPT will provide additional details concerning the level of enhancement the proposed improvements will provide.

**INTERSTATE 81 PPTA PROPOSAL REVIEW
SUMMARY OF MAJOR REVIEW AREAS
FLUOR VIRGINIA, INC.**

TEAM QUALIFICATIONS – It should be noted that the magnitude of this project limits the opportunity for teams to demonstrate experience with projects of similar size or dollar value. Fluor Virginia has assembled a team that has adequate experience with projects of similar type. Experience is demonstrated with roadway design and construction, including design-build projects. Experience is indicated on interstate roadway, toll facility and railway construction projects. Fluor also has PPTA experience in Virginia from their work on the Pocahontas Parkway project. Most of the team members proposed have performed work for VDOT in the past.

Based on the review of the conceptual proposal as well as the detailed proposal which was submitted by Fluor, the proposed team appears to have adequate qualifications to perform the proposed work.

TRAFFIC PROJECTIONS - The information provided by Fluor did not contain any Level of Service (LOS) analysis although it did state that with their proposed improvements 85% of the corridor would attain LOS C or better in 2035. However, much of the I-81 corridor is considered rural, which will require a LOS B. The 85% of the corridor that operates at LOS C is based on traffic reductions from the diversion of 500,000 trucks per year to rail as well as the potential diversions caused by tolls. The resulting LOS of the local road networks, caused by these diversions was not addressed. Fluor did not identify the routes to which the mainline traffic would be diverted. The origin-destination traffic model that was referred to is, at this time, highly speculative. Although the proposal states that Fluor will be providing a satisfactory LOS at all interchanges, they are proposing to reconstruct the interchanges based on year 2020 traffic forecasts, not 2035. It is likely that when 2035 projections are used, the some of the configurations proposed will not be adequate. The assumptions for growth rates that Fluor used appear reasonable, if they are compounded rates. A toll increase every five years is assumed, with no negative impact. This assumption will require further study.

It should be noted that the Tier I NEPA document, being prepared by the Department, will provide more detailed traffic projections as well as an assessment of the impacts of tolls.

SCHEDULE - The timeframe for the Fluor proposal is extremely compressed. Each 20-mile segment of widening would need to be completed within two years. They most likely can supply the necessary work force to meet the schedule as proposed. Likewise, it is possible to complete the work in the timeframes as proposed. There may be challenges obtaining material in the quantities that will be needed. The quarries and plants may not be able to supply enough materials to support this amount of construction activity and Fluor may have to go farther away to meet their needs. There are also potential impacts to the costs of other projects that may be competing for the same materials. The time frame as proposed is extremely aggressive and will be difficult to maintain.

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COST ESTIMATE - A team of VDOT employees evaluated the cost estimate for the proposal from Fluor Virginia, Inc. to confirm that the estimate is reasonable and all costs associated with the proposal are indeed necessary and accurate. Reference is made to the attached document entitled "Estimate Verification of Interstate 81 Corridor Improvement Project PPTA Proposals" for more details of how this was accomplished. The overall cost Fluor provided to VDOT in their detailed proposal is similar to the cost that the VDOT team generated for the corridor although there are individual areas where the VDOT team had discrepancies with the Fluor proposal. As shown in the chart below, the total cost proposed by Fluor appears reasonable for the scope of work proposed.

FLUOR PROPOSAL ESTIMATE CATEGORY	VDOT EVALUATION
Traffic Control	Reasonable
Bridges	High
Retaining Walls	High
Clearing and Grubbing	Reasonable
Earthwork	Slightly High
Drainage	Slightly High
Erosion Control	High
Pavement	High
Guardrails/Barrier	Reasonable
Striping/Lighting/Signage	Reasonable
Utility Relocations Allowance	Reasonable
Soundwalls	Low
Indirects/Mobilization/Program Management	Reasonable
Rest Area Improvements	Reasonable
Wireless Infrastructure	Reasonable
Toll Systems	Reasonable
Design/Quality Assurance	Reasonable
Right of Way Allowance	Slightly Low
Total Design/Build Estimated Cost	Reasonable

**INTERSTATE 81 PPTA PROPOSAL REVIEW
DETAILED PROPOSAL EVALUATION AND SELECTION CRITERIA
STAR SOLUTIONS**

Qualifications and Experience Does the proposer propose a team that is qualified, led, and structured in a manner that will clearly enable the team to complete the proposed project?

1. Experience with Similar Infrastructure Projects - Have members of this team previously worked together constructing, improving or managing transportation infrastructure? Has the lead firm managed, or any of the member firms worked on, a similar privatization project?

Most of the proposed team members have worked together on previous projects. Several have been involved in past PPTA projects in Virginia.

2. Demonstration of Ability to Perform Work - What commitments has the team made to carry out the project? Does the team have a track record of timely completion of projects? Does the team possess the necessary financial, staffing, equipment, and technical resources to successfully complete the project? Do the team and/or member firms have competing financial or workforce commitments that may inhibit success and follow-through on this project?

The proposal identified key team members who have extensive experience in the development and construction of major transportation facilities. The identified team members appear to have sufficient staff and resources for the project.

3. Leadership Structure - Is one firm designated as lead on the project? Does the organization of the team indicate a well thought out approach to managing the project? Is there an agreement/document in place between members?

KBR, Inc. has been identified as the lead firm for the project. Contractual arrangements between the proposed team members could not be determined from the proposal.

4. Project Manager's Experience - Is a Project Manager identified, and does this person work for the principal firm? If not, is there a clear definition of the role and responsibility of the Project Manager relative to the member firms? Does the Project Manager have experience leading this type and magnitude of project?

Al Volpe of KBR, Inc. has been identified as the Project Manager for STAR Solutions. He is currently project manager for a \$620 million, 880-mile design-build rail project in Australia.

5. Management Approach - Have the primary functions and responsibilities of the management team been identified? Have the members of the team developed an approach to facilitate communication among the project participants? Has the firm adequately described its approach to communicating with and meeting the expectations of the Commonwealth?

The proposal identified the organizational structure of the project team, identifying the primary functions, and team members responsible for each function. The proposal indicates which function will be responsible for the management of community relations and communications. The proposal indicates STAR Solutions plans to collaborate with VDOT. STAR Solutions proposes that VDOT co-locate staff at their construction/ design field offices. VDOT is also invited to participate, at a minimum, as the lead designer of at least one major interchange in the corridor. STAR Solutions also intends to rely on VDOT expertise, counsel and leadership in many other areas.

6. Financial Condition - Is the financial information submitted on the firms sufficient to determine the firms' capability to fulfill its obligations described in the project proposal?

The proposal contained information that, when supplemented by additional readily available public information, allows sufficient determination of the firm's financial capability. More details regarding this determination are contained in the responses to the evaluation criteria that specifically address "project financing."

7. Project Ownership - Does the proposal identify the proposed ownership arrangements for each phase of the project and indicate assumptions on legal liabilities and responsibilities during each phase of the project?

At all times the VDOT will retain ownership of the facility. Members of STAR Solutions will be liable for their actions. Routine and ordinary maintenance of existing I-81 will remain the responsibility of VDOT during the construction process and when construction is completed, with the exception that STAR Solutions will be responsible for maintaining the new pavement for a 20-year period.

8. Participation of DBEs - What is the level of commitment by the proposers to use DBE enterprises in developing and implementing the project?

The proposal addresses the 12% goal for DBE participation. STAR has indicated that a position will be established on their team for a Diversity Advocate, and have identified the individual who will fill this position. They plans to utilize DBE's in the design and construction phases.

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9. Competitive Bidding – To what extent have adequate and transparent procurement policies been adopted by the proposer to maximize competitive bidding opportunities for potential subcontractors and suppliers?

The proposal did not indicate specific bidding opportunities or procurement policies; however, it does indicate that KBR, Inc. does intend to subcontract out most of the construction work to local and regional contractors.

10. Long-Term Commitment to Safety - What is the safety record of the firm or firms that comprises the team?

The proposal indicates apparent safety advantages associated with the design concept they are proposing. The proposal indicates that the members of the proposing team have "outstanding" safety records.

11. Appropriately Skilled Workforce – Do the firms on the team have training programs, including but not limited to apprenticeship programs, in place for employees?

The proposal indicates training programs exist for their inspectors to leverage current quality knowledge.

Project Characteristics Is the proposed transportation facility technically feasible?

1. Project Definition - Is the project described in sufficient detail to determine the type and size of the project, the location, all proposed interconnections with other transportation facilities, the communities that may be affected, and alternatives (e.g. alignments) that may need to be evaluated?

The concept is described adequately in the proposal. The number of lanes to be added, lane configuration, and interchange improvement types are all indicated. There is some ambiguity with regards to the location/quantity of proposed sound barriers and the responsibility for several activities associated with identifying and addressing potential hazardous materials.

2. Proposed Project Schedule - Is the time frame for project completion clearly outlined? Is the proposed schedule reasonable given the scope and complexity of the project? Does the proposal contain adequate assurances that the project will be completed and will be completed on time?

A schedule is included which indicates the timeframe for completion. The time frame as proposed is extremely aggressive and will be difficult to maintain. STAR Solutions indicates that assurance for timely completion is inherent in the collective experience of their team members. In a table for identifying and assigning risks, schedule risks are assigned to STAR Solutions.

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3. Operation - Does the proposer present a reasonable statement setting forth plans for operation of the facility?

STAR Solution's proposal indicates that routine operation of the roadway will be the responsibility of VDOT, except for items covered by the pavement warranty. Operation of the toll facilities will be the responsibility of the STAR Solutions team.

4. Technology - Is the proposal based on proven technology? What is the degree of technical innovation associated with the proposal? Will the knowledge or technology gained from the project benefit other areas of the state or nation? Does the technology proposed maximize interoperability with relevant local and statewide transportation technology? Can the proposed project upgrade relevant local technology?

STAR Solution's proposal relies on current industry technology for construction of the roadway. The design concept of providing dedicated truck-only lanes is innovative, as are the connections of the dedicated lanes to the general purpose lanes. The toll collection method proposed, an open-road, fully automated, electronic system of toll collection on Heavy Commercial Vehicles for the entire I-81 corridor, is also innovative. Additionally, proposed ITS and weigh in motion features provide technological advantages. The toll collection system as proposed will require VDOT to coordinate with toll systems that utilize a system other than "Smart Tag", as well as with DMV's in Virginia and other states.

5. Conforms to Laws, Regulations, and Standards - Is the proposed project consistent with applicable state and federal statutes and regulations, or reasonably anticipated modifications of state or federal statutes, regulations or standards? Does the proposed design meet appropriate state and federal standards?

The proposal does not require any corridor-wide design exceptions from current standards. The proposal will not require legislative changes; however, if it becomes necessary to collect tolls from passenger vehicles, legislative actions would be required. Legislative actions may also be required to support enforcement of unpaid tolls using the license plate recognition system. FHWA has granted "conditional provisional" approval for VDOT to place tolls on I-81. Of significant importance is the statement in the proposal that indicates that additional lanes or diversions will be required to maintain the 2025 LOS in year 2035. This would indicate that what was proposed is inadequate, and that significant changes in scope (and costs) will be required to meet the minimum requirements.

6. Federal Permits - Is the project outside the purview of federal oversight, or will it require some level of federal involvement due to its location on the National Highway System or Federal Interstate System or because federal permits are required?

Federal actions will be required due to Route 81's designation as an Interstate facility, as well as the proposed use of earmarked Federal funds to finance the project.

7. Meets/Exceeds Environmental Standards - Is the proposed project consistent with applicable state and federal environmental statutes and regulations? Does the proposed design meet appropriate state environmental standards? Does the proposal adequately address or improve air quality conformity?

A review of the proposal has not revealed any aspects of the project that are inconsistent with applicable state and federal environmental statutes and regulations, however, there will be a significant amount of environmental compliance activity required to accomplish the project.

8. State and Local Permits - Does the proposal list the required permits and schedule to obtain them? Are there negative impacts known for the project? If so, is there a mitigation plan identified? Are alternatives to standards or regulations needed to avoid those impacts that cannot be mitigated?

The proposal adequately describes the water quality permit requirements. It appears to have adequately budgeted for the acquisition of permit authorizations, compensatory mitigation for wetlands, streams, natural resource investigations and clearances, and other ecological impacts.

9. Right of Way - Does the proposal set forth the method by which the private operator proposes to secure all property interests required for the transportation facility? Does the statement include: the names and addresses, if known, of the current owners of the property needed for the facility, the nature of the property to be acquired, and a listing of any property that the responsible public entity is expected to be requested to condemn?

STAR Solutions proposes to facilitate the right of way acquisition process, but a plan for accomplishing this is not provided. Due to the current level of development, VDOT determined that it was not appropriate to expend resources identifying individual owner names and addresses. This information will be developed when project development is at a more appropriate stage.

10. Maintenance - Does the proposer have a plan to maintain this facility in conformance with VDOT standards? Does the proposal clearly define assumptions or responsibilities during the operational phase including law enforcement, toll collection and maintenance?

STAR Solution's proposal indicates that routine maintenance of the roadway will be the responsibility of VDOT, except for items covered by the pavement warranty. Maintenance of the toll facilities will be the responsibility of the STAR Solutions team.

Project Financing Has the proposer provided a financial plan and financial guarantees which will allow for access to the necessary capital to finance the facility?

1. **Financing** - Did the proposer demonstrate evidence of its ability and commitment to provide sufficient equity in the project as well as the ability to obtain the other necessary financing?

Past examples of successfully completed projects by members of the STAR Solutions team were provided in the proposal. A review of the proposal by the Public Resources Advisory Group (PRAG) has indicated that the ability to sell the proposed amount of unrated subordinated debt will be influenced by the creditability of the toll revenue estimates. Access to several of the proposed sources of funding is beyond the control of the proposing team.

2. **Financial Plan** - Does the financial plan demonstrate a reasonable basis for funding project development and operations? Are the assumptions on which the plan is based well defined and reasonable in nature? Are the plan's risk factors identified and dealt with sufficiently? Are the planned sources of funding and financing realistic? Does the proposer make a financial contribution to the project?

Portions of the finance plan proposed by STAR Solutions appear to be based on reasonable assumptions. Some, but not all risk factors have been identified in the proposal. The proposal relies on funding to be available from projects currently funded in VDOT's SYP. Comparison of the available funds from these projects and those anticipated in the proposal reveals a discrepancy.

3. **Estimated Cost** - Is the estimated cost of the facility reasonable in relation to the cost of similar projects? A significant portion of the final determination will rely on a cost/benefit analysis.

A review of the estimate included in the proposal has indicated that although there were some individual areas where VDOT's review identified some discrepancies, the overall costs proposed by STAR Solutions are reasonable.

4. **Life Cycle Cost Analysis** - Does the proposal include an appropriately conducted analysis of projected rate of return and life cycle cost estimate of the proposed project and/or facility?

STAR Solutions references life cycle cost analysis in their discussion of the pavement warranty, but the analysis is not included in the proposal.

5. **Business Objective** - Does the proposer clearly outline his reason for pursuing this project? Do his assumptions appear reasonable?

No business objective for the STAR Solutions team is outlined in the proposal.

Public Support Has the proposer garnered sufficient public support for the proposed project?

1. Community Benefits - Will this project bring a significant transportation and economic benefit to the community, the region, and/or the state? Are there ancillary benefits to the communities because of the project?

Proposal states: "...addition of new capacity throughout the corridor will reduce the need to divert traffic onto local roads to avoid accidents on I-81, ...". It also indicates that by providing enhanced safety and reduced congestion, the trucking industry will receive benefits adequate to offset the costs of the tolls and the region will be made more attractive to new and expanding businesses.

2. Community Support - What is the extent of support or opposition for the project? Does the project proposal demonstrate an understanding of the national and regional transportation issues and needs, as well as the impacts this project may have on those needs? Is there a demonstrated ability to work with the community?

STAR Solutions indicates that they have had discussions with local government officials and local communities as well as conducted public opinion research. According to the proposal, the results of these efforts indicate public support for their concept. There is some inconsistency between the results indicated in the proposal and the comments received by VDOT from local jurisdictions and other interested parties. While there is obvious widespread support for improving I-81, there appears to be substantial variance with regards to the type of improvements necessary, the means of financing, and the diversion of freight.

3. Public Involvement Strategy - What strategies are proposed to involve local and state elected officials in developing this project? What level of community involvement has been identified for the project? Is there a clear strategy for informing, educating and obtaining community input through the development and life of the project?

The proposal indicates that the STAR Solutions team will work closely with VDOT on media relations and that they will establish a comprehensive communications plan. Several communications methods are proposed.

Project Compatibility Is the proposed project compatible with state and local comprehensive plans?

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1. Compatibility with the Existing Transportation System - Does this project propose improvements that are compatible with the present and planned transportation system? Does the project provide continuity with existing and planned state and local facilities?

The proposal states that the improvements proposed by STAR Solutions are consistent with those included in the VDOT improvement studies. This consistency is achieved by providing comparable capacity improvements, even though the lane configuration differs from those recommended in the studies. Transitions will be required from the proposed concept with dedicated truck only lanes to the existing interstate adjoining the proposed project.

2. Fulfills Policies and Goals - Does the proposed project help achieve performance, safety, mobility or transportation demand management goals? Does the project improve connections among the transportation modes?

Improvements in safety appear to be consistent with providing dedicated truck-only lanes. Further study will be required to determine if the proposed number of lanes will adequately address future capacity requirements. It is unclear if the proposed improvements will adequately address transportation planning criteria such as achieving an appropriate Level of Service. Interconnections among transportation modes are not addressed in the proposal.

3. Enhance Community-Wide Transportation System - Are there identified project benefits to the affected local jurisdiction's transportation system? Does this project enhance adjacent transportation facilities?

The proposal addresses only improvements directly on I-81. Adjacent transportation facilities are not addressed. The only exception to this would be if VDOT should choose to pursue the rail improvement option STAR Solutions has proposed with an additional estimated cost of \$111 million.

4. Consistency with Local, Regional and State Transportation Plans - Is the project consistent with city and county comprehensive plans and regional transportation plans? Is this project consistent with plans and documents of the Virginia Multimodal Long Range Plan? If not, are steps proposed that will achieve consistency with such plans?

A narrow majority of local government responses indicated that the proposed improvements were consistent with their local comprehensive plans, however this may be misleading in that most of the negative responses were related to the imposition of tolls, and not the physical improvements themselves. When the comments are evaluated to determine which local governments actually indicated that the proposed physical improvements are inconsistent with their local transportation plans, the majority indicated above increases substantially.

- 5 . Economic Development - Will the proposed project enhance the state's economic development efforts? Is the project critical to attracting or maintaining competitive industries and businesses to the region, consistent with stated objectives?

The STAR Solutions' proposal indicates that this project would facilitate economic development along the corridor. The proposal states that the separation of I-81 and I-77 will facilitate the construction of a new industrial park, and that the increases in safety and efficiency will boost tourism opportunities. Statistics relating each billion dollars of highway construction to \$2.05 billion of economic activity as well as increased jobs was also included. Virginia Economic Development Partnership is conducting a review that will provide additional insight into this area.

- 6 . Intermodal/Rail – Does the proposed project enhance intermodal/rail facilities?

The proposal does include a rail improvement alternative, available at an additional cost. The rail improvements proposed address an existing "bottleneck" in the existing Norfolk Southern facilities. A separate review by DRPT will provide additional details concerning the level of enhancement the proposed improvements will provide.

**INTERSTATE 81 PPTA PROPOSAL REVIEW
SUMMARY OF MAJOR REVIEW AREAS
STAR SOLUTIONS**

TEAM QUALIFICATIONS – It should be noted that the magnitude of this project limits the opportunity for teams to demonstrate experience with projects of similar size or dollar value. STAR Solutions has assembled a team that has adequate experience with projects of similar type. Experience is demonstrated with program management, design, financing, public involvement and construction. Experience is indicated on interstate roadway, toll facility and railway construction projects. The team has demonstrated PPTA experience in Virginia from their work on the Route 288 project. Most of the team members proposed have performed work for VDOT in the past.

Based on the review of the conceptual proposal as well as the detailed proposal which was submitted by STAR Solutions, the proposed team appears to have adequate qualifications to perform the proposed work.

TRAFFIC PROJECTIONS – The information provided by STAR Solutions contains statements relating to possible diversion routes that VDOT staff disagree with (no realistic alternatives in or immediately adjacent to the I-81 corridor). Although no diversion routes are identified, they indicate that their design is based on a 20% diversion rate. The resulting Level Of Service (LOS) of the local road networks, caused by these diversions was not addressed. In the overview of their traffic studies that STAR Solutions provided, several errors were discovered. Annual Growth Rates were calculated incorrectly (and are not shown consistently throughout the calculations); the passenger-car-equivalency for trucks is stated as 2 (should be 3) cars per truck; LOS is shown for 2025, but not for the design year of 2035; the LOS shown for the year 2025 is unacceptable based on the Federal guidelines that require a LOS C in urban areas, and a LOS B in rural areas (LOS D and C are shown); the LOS should be calculated separately for truck lanes and car/truck lanes. Of significant importance is the statement in the proposal that indicates that additional lanes or diversions will be required to maintain the 2025 LOS in year 2035. This would indicate that what was proposed is inadequate, and that significant changes in scope (and costs) will be required to meet the minimum requirements.

It should be noted that the Tier 1 NEPA document, being prepared by the Department, will provide more detailed traffic projections as well as an assessment of the impacts of tolls.

SCHEDULE - STAR Solutions proposes to construct the entire I-81 improvement project in four phases over a 13-year period. Based on some staff review, it appears STAR Solution's construction schedule is proposing to build 17 new/replacement bridges, widen seven bridges, construct 5 interchanges, and lay down seven 3-mile segments of roadway every 18 months. There is also a 12-month period from April 2008 to April 2009 where all four phase will overlap. STAR Solutions most likely will be able to acquire sufficient manpower to meet their schedule. Likewise, it is possible to complete the work in the timeframes as proposed. There may be challenges obtaining material in the quantities that will be needed. The quarries and plants may not be able to supply enough materials to support this amount of construction activity and STAR Solutions may have to go farther away to meet their needs. There are also potential

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impacts to the costs of other projects that may be competing for the same materials. The time frame as proposed is extremely aggressive and will be difficult to maintain.

COST ESTIMATE - A team of VDOT employees evaluated the cost estimate for the proposal from STAR Solutions to confirm that the estimate is reasonable and all costs associated with the proposal are indeed necessary and accurate. Reference is made to the attached document entitled "Estimate Verification of Interstate 81 Corridor Improvement Project PPTA Proposals" for more details of how this was accomplished. The overall cost STAR Solutions provided to VDOT in their detailed proposal is similar to the cost that the VDOT team generated for the corridor although there are individual areas where the VDOT team had discrepancies with the STAR Solutions proposal. The total cost proposed by STAR Solutions appears reasonable for the scope of work proposed.

STAR SOLUTIONS PROPOSAL ESTIMATE CATEGORY	VDOT EVALUATION
Environmental	Reasonable
Engineering	Reasonable
Engineering & Program Management	Reasonable
Geotechnical	High
Road/Bridge Work	Reasonable
Pavement	High
ITS/Weigh-in-Motion	Reasonable
Soundwalls	Low
Tolling	High
Inspection	Reasonable
Right of Way	Slightly Low
Utilities	High
Pavement Warranty	No Comparison Made/ Assumed Reasonable
Total Proposal Estimate	Reasonable

**INTERSTATE 81 PPTA PROPOSAL REVIEW
DETAILED PROPOSALS
EVALUATION MATRIX**

The following matrix has been established to provide an overview of the two proposals submitted for improving Interstate 81.

EVALUATION CRITERIA	FLUOR VIRGINIA, INC.	STAR SOLUTIONS
Does the proposer present a team that is qualified and experienced?	YES	YES
Is the proposed transportation facility technically feasible?	YES ¹	YES ¹
Is the proposal financially feasible?	YES ²	YES ³
Has the proposer garnered sufficient public support for the proposed project?	YES	YES
Is the proposal compatible with state and local transportation plans?	YES ⁴	YES ⁴

¹ May not provide adequate level of service for appropriate design year (to be determined by environmental study).

² Requires legislative changes to be feasible.

³ Requires federal funding that has not yet been approved to be feasible.

⁴ Local governments have not indicated that the physical improvements proposed are incompatible with plans, but some have indicated that tolling is not compatible with their plans for development.



**Estimate Verification of
Interstate 81 Corridor Improvement Project PPTA Proposals**

December 18, 2003

Overview

VDOT staff have studied the two proposals from Fluor Virginia, Inc. and STAR Solutions to verify the costs of improvements to the I-81 corridor. Various methods were used to confirm that the estimates are reasonable and all costs associated with the proposal are indeed necessary and accurate. VDOT's staff utilized various sources including historical data on the I-81 corridor, past estimates on VDOT projects with similar characteristics to this proposal, historical data from past PPTA projects, current estimating techniques, and information provided by the FHWA on cost history.

Each proposal divided their final cost estimate into separate items. VDOT's team used the same items to provide a cost estimate on the corridor improvements. Each item was considered individually and engineering judgment was used to determine the best method for verifying the costs of the project. Also, methods were incorporated to try and match and understand how the proposing team estimated their costs on the improvements and then engineering judgment was incorporated to logically verify their methods. The following sections of this report explain the methodologies used for each item of the proposals.

The Flour Virginia proposal's estimate was presented to VDOT in terms of year of expenditure costs. Therefore, VDOT staff applied an inflation factor to the estimates associated with the indicated work. A factor of 3 percent was used to remain consistent with the same factor that Fluor used in their projections. This factor is not consistent with VDOT standard practice and this issue warrants further evaluation prior to utilizing these figures for any contractual purposes.

The STAR Solutions proposal's estimate was presented in 2003 dollars. Therefore, VDOT staff developed estimates based on the same. It should be noted that when staff attempted to inflate their estimated costs to compare to figures used in the plan of finance, a significant difference was observed. This should warrant further evaluation prior to utilizing these figures for any contractual purposes.

Traffic Control / Maintenance of Traffic

VDOT staff reviewed the traffic control/maintenance of traffic costs of several I-81 projects that have been built since 1997 to develop an estimate for a cost per mile. Allowing for items that can be used from project to project without long hauls should result in a lower cost than a typical 2 to 4 mile project. It is reasonable anticipate some economy of scale in this category and this was also considered in the evaluation.

Bridges

A cost per square foot was applied to the scope included in each proposal. A review of historical unit cost provided by the FHWA shows that the unit cost for bridges does not show an upward trend from year to year in Virginia. The unit cost of bridges

typically follows a trend inversely proportional to the number of bridges built. This shows that competition drives the unit price of bridges more than inflation.

Retaining Walls

Review of the proposal indicates a cost per mile trend. The southern section of the corridor has a higher cost per mile and steadily decreases as it progresses to the north. This is a logical trend due to the more mountainous terrain in the southern section of the corridor. VDOT staff verified the accuracy of these costs.

Clearing and Grubbing

The cost for clearing and grubbing that VDOT staff used was estimated by historical data on projects VDOT has completed along the I-81 corridor. When the data was summed and averaged, and compared to the proposal.

Earthwork

The methodology VDOT staff applied to earthwork was also based on a cost per mile derived from historical data. Historical data on the existing corridor in the Bristol area was used. Due to the mountainous terrain, it is assumed that the VDOT total should be high when applied to the entire corridor. Also, the cost for earthwork estimated using generalized assumptions and applying estimated unit costs. Engineering judgment was utilized to compare both methods with the estimate contained in the proposal.

Drainage / Erosion and Sediment Control

The cost of drainage on this type of project is generally as a percent of all roadway item costs of the project. VDOT staff combined E&S items along with all other drainage items and compared this to the percentage applied to the estimated roadway costs of the proposal. This same method was applied to the estimate for roadway items developed by staff, and.

Pavement

VDOT staff used two separate approaches. First, the VDOT team generated costs according to the typical sections and the cost of the pavement items, and estimated a total cost for the type of typical called for in the proposal. The second method utilized by VDOT was a cost per mile based on historical data. The projects referenced for the data were similar to the design proposed. The results were then compared to the proposal and evaluated.

Guardrails / Barrier

The method used by VDOT staff for median barrier was based on the estimated length of median barrier required, and applying an average price per linear foot to get an

estimated cost. The average price was determined from historical data from previously completed corridor projects. The VDOT method for estimating guardrail was an average price of all guardrail items from previous I-81 projects also but an average price per mile was included for the entire length.

Striping / Lighting / Signage

The VDOT cost estimate for these items was based on the average 1991 interstate costs on a per mile basis. Individual interstate projects were also averaged to get a cost per mile but the results were so inconsistent that it was decided to use the average from 1991 and inflate the numbers to the design year. When this average was used and applied per mile, and then compared to the estimated costs

Utility Relocation Allowance

The Bristol, Salem and Staunton District personnel specifically traveled the Route 81 improvement corridor. During this investigation Utility impacts were identified, documented and the cost generated using the Project Cost Estimating System (PCES) software. A RUMS estimate was also run for the corridor. These numbers were compared to the proposal estimate and evaluated.

Sound walls

The Sound Barrier cost estimate was compiled using historical information developed from the Route I-81 corridor. This estimate includes the possibility of Sound Barrier protection for both sides of the 325 miles I-81 improvements. An estimated average Interstate barrier length in a rural roadway setting of approximately 2500 feet was assumed. An assumed height was developed and a cost per square foot was applied. Assumptions were developed concerning barrier coverage for the 650 miles of possible roadway right of way (325 miles, both sides of the roadway) to estimate the potential number of barriers. These factors were used to develop a corridor-wide estimate, which was then compared to the proposal estimate.

Indirect Costs / Mobilization / Program Management / Design and Quality Assurance

Multiple categories were combined for comparison. The individual items in these categories are typically all based on percentages of the construction costs of the project. VDOT staff determined average percentages that VDOT would normally associate with these items and compared these to the percentages contained in the proposals.

Wireless Infrastructure

Assumptions were made based on a recent I-81 project. It is assumed that the general characteristics of the projects would be similar. The results were then compared to the proposal and evaluated.

Toll Systems

The VDOT team referenced the cost of the recently completed Pocahontas Parkway project to estimate the cost for toll systems. Fiber optic systems that are proposed by were compared to cost contained in industry documentation (Intelligent Transportation Systems Benefits and Costs 2003 Update). The results were then compared to the proposal and evaluated.

Right of Way

Where provided, quantities and types of land to be impacted, number of residential relocations, and number of commercial locations at each interchange along the corridor as shown in the proposal were used. Also, VDOT staff determined additional areas as likely to be impacted by the proposal and these were also quantified. VDOT's Cost Estimating System (CES) was used to produce an average square foot cost. Percentages were calculated for what type of land was to be acquired such as residential, agricultural, or commercial based on the percentages shown in the proposal. These percentages were then input into CES and an average cost was applied to the individual section. Relocation costs were also derived from CES. The cost of relocating a business was assumed to be twice that of a residential relocation. The results were then totaled, compared to the proposal, and evaluated.